

ABSTRACT OF THE DISCLOSURE

The present invention provides a wavelength converter with wideband four-wave-mixing, which includes a laser diode, an optical modulator, a first and a second polarization controllers, a first, a second and a third
5 tunable lasers, an optical coupler, a semiconductor optical amplifier (SOA) and a multiplexer. The present invention utilizes an assist beam that can improve the recovery rate and saturation power of the SOA. While the SOA is operated at a bias current close to the transparent condition for the assist beam, it does not influence the gain of the SOA wavelength converter.